

**REMARKS**

Claims 1-4 and 6-34 are pending in this application. Claims 12-18 and 21-25 are withdrawn from consideration. Claim 34 is added. The new claim does not add new matter. Entry at this time is proper as the new claim does not require any further search or consideration.

Favorable reconsideration and allowance of the present patent application respectfully are requested. The following remarks are believed to place the application in immediate condition for allowance.

**Allowable Subject Matter**

Applicants acknowledge with appreciation that the Examiner indicates that claims 1-19 and 21-33 contain allowable subject matter.

**Office Action**

Claim 20 stands rejected under 35 U.S.C. § 103(a) as allegedly rendered obvious by U.S. Patent No. 4,313,184 (Jarman et al.). The rejection respectfully is traversed.

To establish obviousness, the Office Action must meet three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must

be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claimed limitations. MPEP § 2143. Applicants respectfully submit that the Office Action fails to establish obviousness with respect to claim 20.

Applicants submit that Jarman does not disclose or suggest all the claimed limitations. Specifically, Jarman does not disclose or suggest forming a receiving beam using sample data obtained by sampling the echo signals in multiple scanning cycles, as recited in claim 20.

Jarman relates to a side scan sonar system for transmitting sonar signal pulses. Jarman describes a fixed beam formed by sampling the detected received sonar signals at the scan frequency during a sampling period that is synchronized with the scanning frequency, as described in Figure 1. Thus, a reception beam of Jarman is formed by using sampled signals obtained during one scanning cycle. Jarman, however, does not disclose or suggest forming a receiving beam using sample data obtained by sampling the echo signals in multiple scanning cycles.

In contrast, claim 20 recites forming "a receiving beam using sample data obtained by sampling the echo signals in multiple scanning cycles, where a scanning cycle is dependent on the scanning frequency." This feature forms a receiving beam using sampled data obtained in multiple scanning cycles. According to

the present invention, sample data obtained in one scanning cycle is not sufficient to form a reception beam. For example, referring to Figure 1 for illustrative purposes only, the elements are divided into two groups such that two scanning cycles are used to form a reception beam. Echo signals coming from a specific direction are received by a reception beam formed by using sampled signals obtained in two scanning cycles.

Jarman does not disclose or suggest these features. Jarman forms a reception beam using sampled signals obtained in one scanning cycle. Echo signals of Jarman coming from a specific direction are received by using sampled data obtained in one scanning cycle. Thus, Jarman does not disclose or suggest all the claimed limitations of claim 20. Applicants respectfully request that the Examiner withdraw the obviousness rejection of claim 20.

#### **New Claim**

New claim 34 is submitted to advance additional embodiments of the present invention. Applicants submit that new claim 34 is allowable at least for the reasons given above.

#### **Conclusion**

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact William F. Nixon (Reg. No. 44,262) at the telephone number of the undersigned below, to conduct an interview

Appl. No. 09/672,879

in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By  #39,491  
MICHAEL K. MUTTER, #29,680

  
MKM/WFN/kpc

P.O. Box 747  
Falls Church, VA 22040-0747  
(703) 205-8000